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TABLE OF CONTENTS.

PAGE.

EDITORIAL ARTICLES:—Art and Nature in Landscape-gardening. 191
Vacant-lot Farming 192
Three New Jersey Pines. (With figure.) . . . . . *Gifford Pinchot.* 192
The Hardy Flower Garden. . . . . *A. Herrington.* 193
ENTOMOLOGICAL:—The Plant-house Aleyrodes. (With figure.) . . . . *W. E. Britton.* 194
CULTURAL DEPARTMENT:—The Hippeastrums.—IV. . . . . *H. Nehrling.* 194
The Hardy Plant Border . . . . . *Robert Cameron.* 196
Seasonable Flower Notes. . . . . *T. D. Hatfield.* 197
Flower Garden Notes . . . . . *E. O. Orpet.* 197
Xanthoceras sorbifolia . . . . . *Danske Dandridge.* 198
CORRESPONDENCE:—The Red Cedar . . . . . *Volney Rogers.* 198
John Evans. . . . . *Thomas Meehan.* 198
Early Flowers. . . . . *J. N. Gerard.* 199
Flowers at the Farmers' Club. . . . . *M. B. C.* 199
RECENT PUBLICATIONS. 199
NOTES. 200
ILLUSTRATIONS:—Aleyrodes vaporariorum, Westwood, Fig. 23. 194
New growth, one year old, on Pinus rigida after the destruction of all green leaves by fire, Fig. 24. 195

Art and Nature in Landscape-gardening.

THIS is the season when we receive the most frequent inquiries from amateur planters about shrubs, trees and herbs for what they call "decorative planting." Many persons who have lately acquired new homes in the country or in the suburbs of cities are now moved to beautify them in some way, and the first thought that occurs to every one is to secure an abundance and variety of what are known as "ornamental" plants. It is not our purpose to make out any such list, and even if we considered it advisable the season is too far advanced to begin to arrange for planting. Nevertheless, these requests suggest a word or two of counsel which may as well be repeated at one season as another. We have no novel doctrine to advance, nothing but a few principles which do not change every year like fashions in millinery.

The spring planting of trees and shrubs is practically over for the year, and where these have been planted by novices it is probable that they have been badly selected and planted in improper positions. Nevertheless, this fact is not utterly discouraging, for when once a landowner begins to take any serious interest in his home-grounds it is probable that the habit will grow on him and become a life-long and increasing source of refreshment and refinement. We have said that both planning and planting by novices are, as a rule, worse than unsatisfactory, for if there is any art which needs original aptitude, special training and long experience for the highest success, it is the art of planting public and private grounds. This statement will be admitted by most men of cultivation, but practically they do not realize its truth. An engineer or a botanist is considered qualified to plan a public garden. Places of remarkable natural beauty, when once they are acquired by a city, are often put under the control of commissioners, who may have a fair education and experience in business, and if they have in addition to this what is known as good taste they are esteemed perfectly competent to preserve these scenes, to develop their charms and to devise facilities for exhibiting them. Gentlemen of wealth who have some cultivation consider themselves quite able to lay out their own places, especially if they have the help of some journeyman gardener, who often has no appreciation of the character and beauty of the grounds, and whose first work will be to despoil the scenery of all that makes it really valuable, and then begin the work of decorating it with flower-beds, Golden Elders and purple-leaved shrubs of various kinds. The worst part of the matter is that the men who are utterly lacking in their abilty to foresee what a piece of ground will look like a few years after they have set out to "improve" it, are quite unconscious of their lack of qualification, and have not the slightest idea that any such qualification is needed. Even if they were capable of taking such a look into the future, they would not be competent to pass any intelligent judgment on the result of their work. The fact is that no one but a man of genuine creative faculty can see just what elements in a landscape are the essentials that ought to fix its character, or can estimate the relative proportional importance which should be given to each one so as to produce the best combined effect and invest the whole with a charm which is distinctly its own.

This brings us again to the point that for the treatment of any piece of ground, public or private, the counsel of a landscape-gardener of recognized standing should be at once taken. The novice who insists upon improving his own grounds must educate himself through his own mistakes. If he begins at the wrong end and buys a great many more novelties and oddities among trees and shrubs than he needs, and then wanders around in his lot for a place to plant them, he will soon see that his crowded grounds have no unity of expression or of purpose. If, however, he will endeavor to set before his mind a clear and definite picture of what his house and grounds together are to look like, and will then attempt to construct his picture, he will not be led to choose a plant simply because the catalogue pronounces it beautiful, but because it is necessary to complete his idea and give expression to his thought. All this sounds very simple, but he will find it no easy task to create such a picture even in imagination. But if he has in mind a design which is reasonably distinct, and for the details of which he can give intelligent reasons, he will certainly learn some things by his experience which very few of his fellow-men understand. When he studies his house and grounds not only as a unit, but in their relation to what is beyond them, and endeavors to shut out what is distracting or unsightly and preserve within a fitting framework the view of distant prospects that are pleasing, and when he attempts to provide for conveniences in the way of buildings and walks and place them so that they do not disturb his picture, he will learn that it requires not only taste, but hard study, to solve the complex problem that he has in hand. He will learn, too, that even within the modest limits of his home acre there are chances for an individuality of plan and for a refinement and finish in the details which an artist of the first rank would not deem unworthy of his powers.

The objection is sometimes made to the work of artists in landscape that, after all, purely natural scenery is the most impressive, and the art of man can only interfere with nature to belittle it or weaken its strongest effects. But the true artist aims to help, and not to hinder, nature. Even the broadest landscape can be improved—that is, adapted to human use and enjoyment if it is treated in a reverent spirit. We do not attempt to thwart nature when we open her thickets and help magnificent trees in their development. We are working with nature if we encourage a screen of foliage deep enough to exclude the intrusion of some disagreeable object, or if we open vistas which will uncover to us the sky-line made by a mountain range. Nature alone does not spread out for us broad stretches of meadow, but if we come to her aid she will give to us all the turf we need. That is, the real artist emphasizes and intensifies here or subdues and qualifies there. He uses the art that mends nature, working in harmony with, and not against her. This truth is not thoroughly comprehended by persons who consider the true work of the land-

scape-gardener to be the planting of flower-beds and of ornamental shrubs. But, after all, it is this broad and catholic art which alone is satisfying everywhere, and which is just as useful in the preservation of the Yosemite Valley or the scenery of Niagara as it is in planning a pastoral park or the grounds about a country house.

A year ago we gave some account of the farming on vacant lots in this city, carried on under the direction of the New York Association for Improving the Condition of the Poor. The experience of another year confirms what we then asserted, namely, that there are many destitute people in the crowded districts of this city who are not only willing to support themselves, but who can earn a living if they are allowed to use land which now lies idle and unproductive. These tenement-house farmers work under the instruction of experts trained and schooled in agricultural theory and practice, so that they really cultivate their land in accordance with the teachings of science. It thus happens that besides gaining some support they are actually learning an honorable trade, and learning it in a more direct and practical way than if they were attending a school of agriculture. Last year the women again proved the best farmers, and again the mothers were delighted at the opportunity of taking their children out of the stifling tenements and giving them an actual taste of country life. Besides this, it is a great advantage to people who are unskilled and unemployed to be lifted up to a place where they can think for themselves and have their dull mental processes stirred up and made helpful. As they begin to sell their material they quickly learn the important lesson that quality commands price, and as they are brought into actual connection with the working world and are encouraged to hope that they may become self-supporting members of society this schooling in the ways of actual business is invaluable. The reason why vacant-lot farmers can support themselves on the products of a comparatively small area is that they sell directly to the consumer. Small bunches of radishes, tastefully arranged and carried in a basket among the tenements, will bring two or three times as much as the same product nets the grower who sells at wholesale. How well some of these people cultivate their varied crops and how effectively they can display them was shown at the American Institute Fair last autumn, where one woman exhibited thirty-five kinds of vegetables, all well grown and all arranged with singular good taste. This collection well deserved the award it received by the unanimous vote of competent judges.

This year the work has started once more in full vigor. Provision has been made for helping a hundred families, and a hundred other applicants were turned away because it was not possible to secure land under favorable conditions. The fact that almost the entire list of vacant-lot farmers this year are novices does not show that the people who took up this work the year before became tired of the experiment because they had failed. On the contrary, it is a fact that the greater proportion of those who once cultivated vacant lots have gone beyond the need of this help. They have been encouraged and enabled to secure steady and remunerative employment, and some of them have abandoned the tenement-house regions for a life in the country. The educational feature of this enterprise is the most interesting part of it, and if it broadens out under the present judicious management as it promises to do, there is no reason why the greater portion of the vacant land that is arable and idle in the suburbs of our cities should not be brought under cultivation. The result will be not only that the necessities of many destitute men and women will be met, but these people will learn that there is a more natural and happy life for them outside of the slums, and that they can make a living in the country by using the knowledge they have gained in these summer schools of practical agriculture.

Three New Jersey Pines.

A RATHER hurried trip through southern New Jersey for the study of forest fires, under the auspices of the State Geological Survey, recently took me, with my traveling companion, Mr. H. S. Graves, through the fire-devastated south-eastern portion of the state. Aside from the main results of the trip, which must be reserved for a report to the next Legislature, the excursion yielded the following notes on three of the New Jersey Pines:

Pinus rigida.—The power of this tree to sprout from the stump has been well known hitherto, but it has been generally supposed that the sprouts perish in early youth, never attaining merchantable size. This ability to coppice freely is mentioned by Mr. B. E. Fernow in an article in No. 405 of Garden and Forest, but the size to which the sprouts attain does not seem to have been definitely described. Southward from Lakewood and Toms River, on the barren, sandy, burned portions of the state, these sprouts of Pinus rigida are exceedingly common. In the larger specimens, which commonly reach a diameter of six to eight inches, breast-high, from two to five sprouts from the same stump are usual, while those of younger growth are often much more numerous. The life and proportions of the sprouts, like those of the less numerous seedling trees with which they were associated, were so limited and restricted by the frequently recurring fires that I was able to form no judgment of the maximum size to which they may attain. In every case noted the parent stem had been destroyed by fire, not by the axe. This fact, taken in connection with the habits of this tree observed elsewhere, may indicate a possible connection between this unusual sprouting power and the sandy soil and frequent fires of southern New Jersey.

The same capacity to sprout is shown also in the very numerous suckers which cover the trunks and the trunkward ends of the branches of trees whose leaves have been completely burned off, and whose smallest twigs bear marks of fire (see page 195). I am acquainted with no other tree whose capacity to recover after such treatment compares with that of Pinus rigida, although I do not know how durable that recovery may be. The oldest suckers examined had been on the tree but three years.

Pinus echinata.—So far as I am informed, sprouts of this tree have not hitherto been noted. Near New Lisbon, in the central part of the state, they were quite common, though of small size, while at Lakewood and elsewhere larger trees, which appear to be sprouts, but of which the origin is still uncertain, are often conspicuous. Great numbers of little sprouts occasionally spring from small fire-killed trees at the surface of the ground, as happens so frequently with Pinus rigida, and stumps bearing a number of vigorous living sprouts of some size were also found. The power to sprout from the stump has not, until now, been known to belong to any of the two-leaved Pines in America, nor have I learned of its existence among these Pines in any other region. The five-leaved Pines do not sprout, and among the three-leaved American Pines only P. rigida has, so far as has been reported, this power. The freedom with which in certain localities both these trees, but especially P. rigida, send up sprouts after a fire, leads to the suspicion that these cases may be less isolated than they appear. It seems not unlikely that further search would result in extending the range of the sprouting capacity of P. echinata to other regions, and possibly in finding parallel cases among species whose coppicing power is not yet recognized.

Pinus Tæda.—This tree does not appear to have been reported previously from New Jersey. A single specimen, found on this trip, is growing on the Price farm at Town Bank, on the west side of Cape May, about three miles from the bathing beach and the great hotels. It stands alone, on pure white sand, two or three feet above the fresh-water lagoon, which here, as elsewhere, lies directly behind the moving sand dunes of the shore. The old

whaling town of Portsmouth formerly stood on this land, but its site is now partly under Delaware Bay and partly covered by the sands. The tree is about ten inches in diameter, breast-high, and perhaps twenty-five feet in height, vigorous, wide-spreading and evidently in strong health. Its identification as P. Tæda has been confirmed by Mr. Jack, of the Arnold Arboretum, who was kind enough to examine leaves, cones and fertile seeds gathered from the tree and forwarded for his inspection.

New York. *Gifford Pinchot.*

The Hardy Flower Garden.

MR. A. HERRINGTON, gardener for H. McK. Twombley, Esq., Madison, New Jersey, read a paper on this subject before a meeting of the New Jersey Floricultural Society held at Orange. The paper was illustrated by some fifty colored plates of the best hardy plants. We reproduce, in a condensed form, the more important parts of this paper:

This department of the garden has, generally, the least consideration. A lawn is laid down, a few trees and groups of shrubs are planted, and the garden is made. If the luxury can be afforded, glass is indulged in. Many gardeners understand the cultivation of Palms, Ferns and Orchids, and know the latest introductions from the tropics, but they do not grow more than a small fractional part of the hardy flora of the temperate regions, and of the improved cultivated forms known in some of the best nurseries. Even in an extensive glass establishment only an infinitesimal portion of the tropical flora can be grown, whereas in the garden numberless good and hardy plants will flourish, from the tiny Saxifrage or vernal Gentian to the stately Lilies and sturdy Sunflowers of the prairies.

In home-grounds supposed to have a flower garden one is likely to find a little assemblage of beds, in stars or diamonds and other fanciful geometric forms, and containing a limited selection of plants, mostly tender, and often clipped and pinched into formal shape. The average garden is bald and bare in spring, waiting upon the elements to make possible the planting of tender summer plants, which eventually furnish a gaudy, monotonous display, to become a mass of black decay with the first frost in autumn, while nature's great garden all about us remains beautiful weeks afterward.

Our gardens and parks need never be flowerless except when the ground is frost-bound and all vegetation is dormant. The ideal garden, and the one which can easily be realized, is one which tells the story of the advancing or declining year, and whose blossomings denote the weeks and months as they come and go. In this latitude there should be spring gardens and summer gardens and autumn gardens. In the highways and byways in early spring the resurrection of floral life may be seen on every side, and the garden should awaken in the same way. The mountain plants, whose flowers succeed the melting of the snow, and the waves of verdure spreading over hill and plain teach the practical lesson that plants in the spring garden should not be coddled and given ceaseless attention in dug-up beds and borders.

Ten years ago I tried to express in an English garden my idea of nature's planting on a grassy slope half an acre in extent, where spring-flowering bulbs were disposed. These have increased each year and now make a beautiful and satisfying stretch of blossoms in the turf from January until June. Snowdrops and Snowflakes appear first, and in February Crocuses of many colors, and spreading colonies of deep blue Scillas and Chionodoxas. In March the bright flowers of the Dog's-tooth Violets stand up in tufts of marbled foliage and seem as much at home as in their native Alps. From March until June there is an unbroken succession of Daffodils, and I noticed, two years ago, a tuft with sixteen and another with seventeen flowers where a single bulb had been planted eight years before. Other flowers in this English garden are Apennine Anemones, Grape Hyacinths, Stars of Bethlehem and Fritillaries. Every year, according to the season, there is this combination and succession of bloom for four to six months, at no outlay beyond the first cost of planting, and with no care or attention. In July the slope is mown and kept as a lawn for the remainder of the season. This happy experiment of growing flowers in the turf suggests that stretches of grass need not be cut off close from early spring onward, and that patches under the leafless trees may be charming pictures of spring. This sort of gardening is infinitely more interesting than the ordinary practice of setting out a few beds of Tulips and Hyacinths and drilling a few Pansies and double Daisies into lines and squares. But this is only one kind of spring garden, and another, quite opposite in character, can be made from the arrangement of flowering plants which need careful and persistent cultivation. Then, too, there are many beautiful perennials for the spring garden, such as the dwarf mountain Phloxes, Saxifrages, Sedums, Aubrietias, Arabis, Alyssums, Veronicas, Silenes, etc., with Epimediums, Primulas, Pulmonarias, Mertensias, Convallarias and dwarf spring Irises. Though many of these are alpine plants and natives of rocky ledges above the tree and shrub line, they are entirely happy and prosperous in gardens under right conditions. A miniature of a mountain range should, of course, not be attempted in the garden, but a delightful effort may be had from these hardy plants in rocky beds and borders, with the rocks subordinated to the needs of the plants, instead of the too common rockery in which the plants languish and die.

A great variety of hardy flowering plants are available for making a summer garden, and a careful selection will produce a picturesque and orderly effect during the entire season, and not be a heterogeneous mingling of plants without any unity or harmony. Entire beds are planted with Cannas, Geraniums and other conventional bedding plants, and if hardy plants were used in the same extensive way our gardens would not be colorless, as they have sometimes been described. Many tender flowering plants can be used to make the garden gay in summer, but we are not dependent on them, and they should not monopolize space which could be occupied by better plants. Instead of the little pattern gardens that admit of no variety in planting, and confine our attempts at gardening to one spot, the adaptability of hardy flowers should be studied, and they should be distributed in localities suited to them. The beds should be bold and the borders long and wide, with large groups of one kind of the best hardy flowers. For example, in an Iris garden an acre in extent all of this family could hardly be included, for there are Irises from Europe, Asia, Africa and America; Irises that do well in a wet ditch bottom, and at least one Iris that will grow on the house-top, and between these extremes an endless variety adapted to every soil and every aspect. There are Pæonies, Delphiniums, Pyrethrums and Day Lilies, each of which can be massed with striking effect. Occasionally a few of them are seen dotted here and there at regular intervals, but how often has any one seen them planted in bold, simple, natural groups?

Here again nature gives a lesson for arrangement in the garden. Along the waysides flower succeeds flower on any special area, through spring, summer and autumn, and plantings should be made in the same way in the garden. Many combinations of plants whose flowers succeed each other may be used on the same plot or tract. As a practical illustration I planted last fall some of the best sorts of tree and herbaceous Pæonies. These flower early and are soon past, with only huge tufts of spreading leaves remaining for the season. If Pæonies only were planted there would be no more color for the remainder of the season, and no flowers after Pæony time. But many bright and showy Lilies flower during summer and autumn, and while these flowers enjoy the warm sunshine the roots do best in cool earth and in partial shade; consequently I planted Lilies among the Pæonies. All will grow up together, and when the flowering season of the Pæonies is passed, their luxuriant foliage will help to keep the soil cool and moist, and be an admirable support and foil to the tall Lily stems when in flower. Many similar combinations are practicable, and instead of planting an entire garden each year, some of these plantations will continue for years, increasing in extent and beauty all the while. To be successful, the soil must be well prepared beforehand. A mere turning up of the upper six inches is not sufficient. For some hundreds of feet of hardy flower border made last year we trenched the ground thoroughly two feet deep and broke up the soil below that. Manure was worked in in the proportion of about one yard to six yards of soil. With a little feeding from the surface, plants will thrive for years in borders thus prepared.

There is abundant material, too, for autumn gardens, so that they need not be made up of the languishing remnants of summer. The autumn garden of nature is a calendar of this particular time of year in masses of Golden-rods and Asters, and our gardens may be a similar record of the season. The best of the wild Asters are not to be despised as garden flowers, and many lovely forms have originated under cultivation. On the prairies are perennial Sunflowers, and in the woods and fields close at home are rich, showy Cone-flowers worthy of garden space. The native and cultivated Phloxes,

too, in a hundred good varieties, are cultivated in commercial nurseries. The brilliant and imposing Torch Lilies, or Red-hot Poker-plants, are varied in size, the dwarf Kniphofia MacOwani having spikes two feet high, while the torches of the giant K. nobilis are higher than the head of a man, with other sorts of intermediate height. The profuse and enduring flowers of Japanese Anemones last until they are whipped to pieces and scattered by winter winds. With all these and Chrysanthemums, Crocuses and many more, the autumn garden may be distinct from the garden of other seasons, and have a character of its own which will be individual and fresh.

A garden to be interesting need not have long ranges of glass. To be sure, cheap glass has brought within the range of modest means the growing of delicacies for the table and of flowers for home use. But the range of plants cultivated under glass does not compare with the numberless hardy ones collected from the north and the south temperate zones and from mountain ranges, not to speak of those acquired by hybridization. Cheap glass has had the effect of directing attention away from outdoor cultivation, and too often hardy perennials are spoken of slightingly. The brightest and most interesting garden that I know, and which is a changing picture during nine months of the year, has no glass house, and is a forceful plea for the satisfaction and success of the hardy flower garden.

Madison, N. J. *A. Herrington.*

Entomological.

The Plant-house Aleyrodes.

ALEYRODES VAPORARIORUM was described by Professor J. O. Westwood in *The Gardeners' Chronicle* for 1856, page 852. Its occurrence in America was not recorded until over thirty years later, and it seems probable that the species was in some way introduced into America from Europe. Inasmuch as it is now found in such widely separated localities as Michigan, Kentucky and Connecticut, we may well suppose the insect to be well distributed, at least, over the north-eastern portion of the United States.

This Aleyrodes is found upon Strawberry-plants in the garden, but it is more especially in the greenhouse that the insect assumes the nature of a pest. The Tomato yet remains the chief host-plant of the parasite, though I have observed the larvæ upon the leaves of the Cucumber, Potato and Lettuce growing under glass, while among ornamental plants, Ageratum Mexicanum, Abutilon, sp., and Maurandya scandens were attacked. It has also been reported as infesting Roses, Geraniums, Coleus and Salvia.

Toward the end of the season the Aleyrodes is most abundant in the Tomato-house, and vast numbers of adults are often seen flying about the tops of the plants, near the glass, where they are mating and laying eggs. On the under surface of the leaves are the silvery white, bristly larvæ, which are without power of locomotion, except when newly hatched, and they subsist by sucking the juices from the plant.

The egg is oval and slightly conical in shape, with the larger end fastened to the under surface of the leaf. Two females were observed ovipositing upon Lettuce. The beak was first thrust into the leaf, and, depositing an egg, the female swung about, with beak still inserted in the tissues of the leaf, and serving the purpose of a pivot, continuing to deposit eggs in a circle of about one m. diameter. One circle contained six, and another nine eggs. Eggs are not always deposited in circles. I have frequently found them single and promiscuously scattered over the surface of the leaf. They are of a light green color at first, but soon change to a rather dark brown, and hatch in eleven days.

The young larvæ move about for a short time, during which they find a suitable place to insert their tiny beaks, so that they, too, can suck up the vegetable's juices for their sustenance. They are there permanently fixed until the adult stage is reached. The larvæ are nearly white and more or less transparent, with the edges and dorsal surface well covered with shining bristles. When the larva is full grown it becomes a pupa without visibly changing form; a little later the skin cracks open along the back, and the adult comes forth. For development a period of about five weeks is required for each brood. Many cast pupa skins may be found upon the older and lower leaves of the plant where the larvæ were first to mature.

The adults resemble tiny white moths and are very beautiful when examined under the microscope. Both sexes are winged. An adult has four wings, each with a single median vein. The color of the body is yellow, that of the wings white. The abdomen of the female is thicker and plumper than that of the male. The body, wings and legs are covered with a white powdery substance, which was thought to resemble flour, thus suggesting the name Aleyrodes, which is from the Greek Aleurodes, meaning flour-like. The antennæ are six-jointed.

Entomologically the Aleyrodidæ are intermediate between the plant lice (Aphididæ) on one hand and scale insects (Coccidæ) on the other, and are closely related to both. In fact, for a long time entomologists classed these insects with the Coccidæ.

The genus Aleyrodes has not been well studied in this country, but was monographed by Signoret some twenty or twenty-five years ago.

One species infesting the Orange-tree, figured and described by Riley and Howard in *Insect Life*, vol. v., page 219, had been named Aleyrodes citri previously by Mr. Ashmead.

Aleyrodes vaporariorum is mentioned by Professor L. H. Bailey in Cornell Experiment Station Bulletin 28, page 58, as being a pest of the Tomato-house. Professors H. Garman,* of Kentucky; G. C. Davis,† of Michigan, and A. S. Packard,‡ of Rhode Island, write of the plant-house Aleyrodes under the name of A. vaporarium. A. vaporariorum is the correct name, because it is the one given the insect by Westwood in the original description. There is, of course, a possibility that the two insects are not identical, yet they are supposed to be the same species. The discrepancy in the spelling of the specific name is doubtless an oversight.

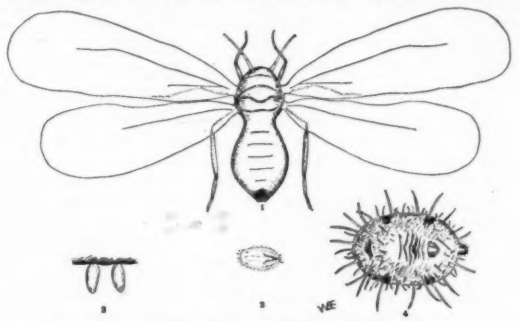

Fig. 23.—Aleyrodes vaporariorum, Westwood.
1, Adult female. 2. Eggs. 3. Recently hatched larva. 4. Full-grown larva.
All magnified 21 diameters.

Fumigating with tobacco will kill the adults in the greenhouse, and this is unquestionably the best way to keep the insect in check. The larvæ upon the leaves may be destroyed by applying a solution of whale-oil soap. Kerosene emulsion is used with success against Aleyrodes citri upon the Orange-trees in the southern states.

The figure on this page shows the insect in the adult, egg and larval stages.

Agricultural Experiment Station, New Haven, Conn. *W. E. Britton.*

Cultural Department.

The Hippeastrums.—IV.

HYBRIDS—CONTINUED.

A LARGE number of gigantic hybrids of the finest form and beautiful colors have recently been introduced by Mr. E. H. Krelage, of Haarlem, Holland. Just now (April 10th) the following are in flower with me: Geier Wally, rosy white ground,

* *Annual Report Kentucky Agricultural Experiment Station*, 1890, p. 37.
† *Insect Life*, vol. vii., p. 174.
‡ *Guide to the Study of Insects*, 9th edition, pp. 526 and 712.

lined and penciled with crimson; segments broad and well formed and flowers well opened, very symmetrical and large; scapes about three feet high, contemporary with the leaves; each stem bears four delicately fragrant flowers. Noble par Mérite, white ground, slightly veined and striated with red; flowers large, of good form and substance, slightly fragrant; stems thirty inches high, each carrying four flowers. Jeanne d'Arc, white, lined profusely with red, greenish in the tube; very floriferous and a strong-growing hybrid. These hybrids compare well with the others now in flower with me. They are vigorous growers and easily managed. The scapes are usually three feet high. The form of the flowers, the narrow-belong to the less beautiful, narrow-petaled Hippeastrum vittatum strain, but Mr. Pfister has lately grown a large number of the vigorous kinds, using for this purpose some of the best forms raised by Messrs. Veitch and Mr. B. S. Williams. From the good hybrid Dr. Masters, fertilized with the pollen of the best forms of H. pardinum, Mr. Pfister has raised a large number of seedlings. Three of the finest he named Ruth, Esther and Marion. They are of symmetrical form, their ground-color is light, and they are profusely spotted and clouded with different shades of red. Like Dr. Masters, they flower when quite small. He also succeeded in raising a deep rosy flowered hybrid with only a few traces of greenish toning

Fig. 24.—New growth, one year old, on Pinus rigida, after the destruction of all green leaves by fire.- See page 192.

channeled leaves and color of the bulbs show that Mr. Krelage has had a way of his own in producing these grand hybrids.

In this country Mr. W. Otto Groner, of the Rock Island Arsenal, has raised the finest forms of Amaryllis. From many hundred seedlings he selected only four, which he named the Koh-i-noor, with very broad segments of a deep glowing red, with a greenish white star and yellowish lips; Modjeska, Barbara Pomfret and Beethoven. With the exception of the last named, these hybrids are rather hard to deal with, and great care is necessary in order to keep them in good health.

The largest collection of Amaryllis in this country has been brought together by Mr. Henry Pfister, head-gardener of the Executive Mansion, Washington, D. C. Most of the hybrids at the base of the tube. This has been named Mrs. Cleveland. In the greenhouses of the Executive Mansion the beautifully foliaged autumn-flowering Amaryllis, such as Mrs. Garfield and Mrs. William Lee, are grown to perfection.

Just now a large number of my own exceedingly vigorous Amaryllis hybrids are in flower. They are refined in form, brilliant in color and of a luxuriance rare among the common strain of Amaryllis. There is nothing in the whole floral world that can compare with these royal plants. By careful selection of the most beautiful and vigorous English hybrids that were awarded certificates of merit by the Royal Horticultural Society and the Royal Botanical Society of London, and such kinds as were pronounced the most beautiful of the Continental collec-

tions, and which are certainly the most expensive, I have succeeded in raising a strain equal and often, as I think, superior to the best forms now in existence. As the most beautiful and symmetrical kinds, such as Brilliant, Chelsoni, Madonna, Clorinda, John Heal. Mrs. Burbidge and Leopoldii, are mostly weak growers and difficult of cultivation, I only use them as pollen plants, never as seed bearers. With them the most robust hybrids are crossed, and I have been fortunate in raising strong-growing, floriferous and gorgeously colored kinds. Some came into flower in three years, and most of them in four years from the seed. It is tedious and often disappointing work to hybridize these plants, as scarcely ten per cent. will ripen their seed. In most varieties the seed-pods swell and promise to give a good harvest, but suddenly, after four weeks' growth, they shrivel and disappoint the enthusiasm of the cultivator. As a rule, the coarse-growing and valueless kinds produce seed freely.

I have invariably found that Amaryllis grow much better and are far more satisfactory as window-plants and in the small greenhouse of the amateur than in the great commercial establishments. They are not quickly raised and easily sold. It takes four years mostly before they come into flower, and during their growth—that is, from the time when they show their flower-buds until late in autumn—they require the best places in the greenhouse. If neglected only for a short time they are almost lost, and once in bad health it is difficult to restore them to their former luxuriance. They require the loving care of the grower at all times, whether resting or growing. For this reason Amaryllis will never become a florist's flower, but it is a most desirable plant for the amateur and window gardener, for the wealthy private flower lover, and for the greenhouses of parks and botanical gardens. In such institutions Amaryllis are indispensable and should be grown in unlimited quantities. Scarcely any other plant is so easily grown as these if their few requirements are understood. They need a season of rest in winter, when water must be entirely withheld, or only sparingly and judiciously applied. During their season of growth in spring and summer they need abundant moisture, being particularly benefited by water in which a small amount of superphosphate has been dissolved. Manure-water is also a good stimulant. I keep the more delicate hybrids in the greenhouse the year round, while the strong-growing kinds are planted out in open hot-beds late in May, and in October they are again potted and transferred to the greenhouse. I use a soil of equal parts of loam, old cow-manure and sand, to which crushed charcoal and old plaster or a little lime is added. As soon as the robust-growing kinds lose their leaves they are placed under the benches with no water at all until they show their flower-scapes late in January or in February, when they are watered a little and set in a warm, sunny place on the benches. When the scape has grown a few inches and the foliage appears, the plants are thoroughly watered about once in ten days. The more delicate sorts, as well as Hippeastrum aulicum and H. reticulatum and its progeny, must be carefully watered throughout the winter and the soil should never become dust-dry.

The finest named hybrids of Amaryllis will always be expensive plants, as they are exceedingly slow in multiplying. Empress of India has been in my possession ten years and I have only a stock of four plants. Fertilized with its own pollen it does not come true, the seedlings being less beautiful in form and color. Laurens Koster, Mozart, Conqueror, Leopoldii, Madonna, John Heal and others are now seven years under my care and I have not succeeded in obtaining one single offset. Pardinum luteum, Mrs. Burbidge and Solandiflorum conspicuum I have had for more than twelve years and they have not produced a single side bulb.

Most of the Amaryllis seen in cultivation are hybrids of Hippeastrum vittatum. Of this strain the late Mr. Souchet, of Fontainebleau, France, and especially Mr. Martin Hoffmann, of Berlin, introduced many striking hybrids. They often came into flower in two years from the seed. They are always characterized by narrow, pointed segments and mostly an overabundance of green in the tube, but they stand a good deal of rough handling among other greenhouse plants, and are therefore usually preferred by florists. But they cannot compare with the magnificent hybrids I have named.

Milwaukee, Wis. *H. Nehrling.*

The Hardy Plant Border.

ALONG the front row of the herbaceous border large patches of the Moss Pink, Phlox subulata, now make imposing masses of color. For a dry, sunny position this is an excellent plant, its evergreen prostrate stems providing a thick mat which completely hides the ground. Now the stems are quite hidden from view with the profusion of blossoms. Stellaria Holostea is a good companion to the Phloxes. It is a plant that quickly spreads and needs frequent trimming to keep it within its allotted space. It has a low decumbent habit, and its flowers are produced in dichotomous cymes and measure about three-fourths of an inch in diameter. The drooping blue flowers of Polemonium reptans add a decided and distinct color to the edge of the mixed border where the white flowers of Arabis albida and Stellaria are abundant, and the pink tints of Phlox subulata and P. procumbens. This Polemonium, which is creeping in habit and has pinnate leaves, when in blossom is about eight or ten inches high. A good rich light soil suits it well, and it thrives here in a sunny position. Erysimum pulchellum is an exception to many of the weedy species of this genus and makes compact plants about a foot in height, with pretty sulphur-yellow flowers. It thrives in the rock garden and also does well in light rich soil in the front of the mixed border.

The summer Snowflake, Leucojum æstivum, is well worth a place in our gardens. The foliage of this bulbous plant resembles that of the Narcissi, and its dainty white Snowdrop-shaped flowers are borne in small drooping clusters on stout erect stems from fifteen to eighteen inches in height. The individual flower has six perianth segments, each delicately tipped with green. The plant is hardy here. Bulbs are procurable in the fall, and if planted then will blossom the following spring. It thrives in a light rich soil, and in Europe, from whence it came, it is frequently planted in the grass. Muscari neglectum has been grown here for a number of years as easily as the common Grape Hyacinth, M. botryoides, and a small bed is now attractive with its numerous racemes of deep blue flowers on scapes about nine inches in height. This south European plant flourishes here in light rich soil in an open position. The beautiful Epimedium macranthum, brought from Japan to Europe in 1836, grows about a foot high. Its leaves are biternate, and the white flowers are produced in short, close racemes. It is a good stock garden plant, and many of the Epimediums are useful under trees where herbaceous plants can be grown with only partial success. Aquilegia Canadensis is always graceful and pleasing and is as happy in the rock garden as when growing wild in rocky clefts on steep hillsides. The decumbent stems of Euphorbia Myrsinites make a graceful draping in the rock garden. When not in blossom this plant is pleasing for its distinct light green glaucous leaves, which make it noticeable even from a distance. This Euphorbia is now flourishing, and umbels of yellow flowers are borne at the ends of the stems. Although a native of southern Europe it is hardy here without any protection. The finest yellow flowers now seen out-of-doors are those of Alyssum saxatile. This plant, while desirable for use in borders, never gives the satisfaction it does when grown in the rock garden, where its stems are so disposed as to show off the dense masses of golden flowers to the best advantage. It enjoys a sunny position and the bright flowers are most beautiful in the sunlight. A few bulbs of Tulipa Greigi have been grown here in the same place without being disturbed for eight years. If planted where water will not lodge about the bulbs in winter they are perfectly hardy, and if not moved often they will flower each spring. Tulipa sylvestris is a species well worth growing. It soon naturalizes itself among the rocks and stones, and its showy, clear yellow flowers are refreshing and satisfying.

A choice and hardy plant for the rock garden is the beautiful Hutchinsia alpina. This neat, compact, dwarf plant has small shining leaves and pure white flowers, produced abundantly in clusters close above the foliage. An open position and a light soil in an elevated part of the rock garden seems to suit its needs. The hardy perennial, Corydalis nobilis, a Siberian plant, is pleasing when in flower, but has the fault of not increasing rapidly. The plant in bloom now is ten or twelve inches high, and its stems are thickly clothed with glaucous bipinnate leaves, the flowers produced in a dense cluster at the end of the stems. The flowers are of a rich golden yellow, with a small reddish chocolate mark in the centre. The creeping Forget-me-not, Omphalodes verna, grows luxuriantly to a height of six to eight inches under the shade of some Hemlock-trees. This charming plant bears handsome deep clear blue flowers with white throats, and its stems are clothed with deep green, ovate-cordate leaves. It increases by runners, and when once established soon covers a piece of ground.

On bright sunny days the object most admired by visitors to the Botanic Garden is a fine patch of Anemone nemorosa, var. Robinsoniana. This lovely plant does not open its flowers on dull days. The flowers are much larger than those of the

species and are of a delightful sky-blue color. Self-sown plants of the Iceland Poppy, Papaver nudicaule, are giving a plentiful crop of yellow cup-shaped flowers now. The flowers of the white variety harmonize well with the yellow ones when they are grown together.

Harvard Botanic Garden, Cambridge, Mass. *Robert Cameron.*

Seasonable Flower Notes.

MARGUERITES are indispensable among the flowers grown for cutting. Their cultivation is easy, constitution robust, and they are almost free from disease and insect pests. With proper treatment Marguerites may be kept in bloom the year round. Old plants which flowered during winter before last when turned into the garden furnished flowers all summer long, though they were rather small. Finer flowers are obtained from young plants, and for winter blooming a fresh lot is raised in the spring and grown on during summer in the garden. Growers of plants for market usually keep them in pots, as they do not lift well, and, besides, with unrestricted root-room they become too large. Marguerites form a conspicuous feature of the display with Azaleas under canvas at Mr. H. H. Hunnewell's place during late May and early June. The kind best suited for growing into bushes such as are used here is the glaucous-leaved type, with finely cut foliage and small flowers. In two or three years they make very large bushes. They are carefully trimmed after the display is over, plunged in pots in the garden and kept from blooming for the remainder of the season. They are gross feeders and respond to liberal treatment. Specimens grown solely for a spring display are kept in cool houses during winter until a few weeks before they are wanted in bloom.

For winter cutting we have found Halleri major the best white; it has large flowers with long stems. Usually we have cut the flowers off singly, but last winter we commenced cutting them in sprays, giving a foot or so of stem. When a plant had been cut over it seemed as if all the flowering shoots had been taken. We obtained just as many flowers in the long run, and could begin to cut again from where we started to cut in about ten days. Sprays with foliage can be used with better effect and last much longer. The unopened buds develop in water, and with a little trimming over we have kept flowers for two weeks.

We have a yellow variety known as Halleri, though it cannot be correctly named so, as it differs but slightly from Etoile d'Or. It is free, however, and that is a quality rare in yellow varieties, so far as my experience goes. During a recent visit to Denys Zirngiebel's establishment at Needham, Massachusetts, I saw a large number of Etoile d'Or blooming splendidly. This stock was imported from France recently, and it is claimed to be an improved type and superior to the variety generally grown in this country under that name. We shall be fortunate if we find it a free-blooming variety and of good constitution, as a yellow Marguerite is badly needed. I found the new giant Californian also in bloom. That the plant, at least, will be a giant, there is not much doubt. The flowers are larger, but the increase in size is rather in the disk than in the length of the ray-florets. It is just about the size and has the general appearance of our common field Daisy.

The double form of the annual Chrysanthemum coronarium has come to be known as the double Marguerite. But common names which carry a wrong impression should be avoided.

The popularity of the modern French Pansies, distinguished for their large size and gorgeous coloring, is due to the efforts of Mr. Zirngiebel, who is a specialist in these as well as Chinese Asters. His intimate acquaintance with Bugnot, the famous French raiser of the type which is known by his name, has enabled him to procure seeds of the very finest strains. He is always careful to tell the visitor that he paid $80.00 for the first ounce of seed he bought of the popular Trimardeau. Finding it moderately hardy, he improved the opportunity to select the hardiest and best colors for perpetuating, and it is probable that Zirngiebel's Trimardeau is the type of all the "own" and "selected" stock now offered throughout the country. It was hardly to be expected that the tender and highly bred browns and reds so common in the genuine Bugnot strain could be merged with the Trimardeau. It has been done, and this season, to purple, white and yellow, will be added brown colors. The Pansy is now a profitable flower for florists.

The two new Hybrid Sweetbriers, named Lord and Lady Penzance, have stood well at Mr. H. S. Hunnewell's place in Natick. They are as hardy as our Prairie Rose. Syringa Japonica is showing well for bloom and promises to be earlier than last season. The specimen here has reached the dimensions of a small tree, and evidently a mature specimen will grow to be forty feet in height. Flowering Thorns, Plums, Apples, Quinces and Cherries are represented here in large numbers. A set, at least, is kept in one quarter of the garden for convenient study as well as effect. Berberis Aquifolium on a north-east slope is full of bloom, and with foliage of classic cut it makes an elegant bush. It will not stand bright sunshine in winter, as might be seen by one bush farther to the south being somewhat burned. A splendid patch of Daphne Cneorum is evidently suited on this north-east slope. It is seldom we find this handsome trailer free from winter-killed branches. The delicious odor from its lovely pink blossoms filled the air in its locality.

Wellesley, Mass. *T. D. Hatfield.*

Flower Garden Notes.

WITH a garden of flowers judiciously planted, there is no period more interesting than the present when all plants are coming on rapidly and many are at their best bloom. The mixed border of bulbs, perennials and annuals makes up the ideal combination that will give flowers from April until October, a result not to be gained in any other way, and at the same time it is the most economical way of filling a border, for few plants need replacing each year except the annuals, and the most of the labor lies in weeding out such as are encroaching on their near neighbors; there are always many of these, and a good time to see to it is the present. Seedlings are the most troublesome, perhaps, and these can easily be detected now before they gain vigor. Larkspurs and Phlox are particularly prone to reproduce themselves, and they are almost invariably inferior, and, unless they are really needed in the border, should be pulled up without hesitation. The newer race of single tree Pæonies have wintered well and seem reliably hardy. There were some that never took kindly to the new conditions last year, and these have died during the winter, but the remainder are well set with flower-buds which will in a few days open about the same time as Pæonia tenuifolia, P. Wittmanniana and P. corallina, all of which are early-flowering species and valuable at this time of year.

It is a matter of surprise to me each season that there are not more of the species of Tulip planted in gardens for permanent effect. Their beauty, hardiness and longevity are all beyond question and look well mixed. The Parrot varieties, the forms of T. Gesneriana, T. elegans, T. cornuta, T. sylvestris and many more, are all thriving better after a five years' residence than if they had been newly imported from Holland. It is true they have all been lifted twice and replanted, but this was necessary owing to the way the bulbs had increased; but, apart from this, no other attention has been given. Oriental Poppies are also planted through the Tulip bed, a large one, and these will flower in June. All are seedlings from the true blood-red form known as Papaver bracteatum, and we find it comes true from seeds when taken from isolated plants. The Poppies in their turn will die down soon after the Zinnias are set out between the Tulips, and we shall have good effects from these in late summer until frosts arrive. There are no annuals that are so satisfactory as the Zinnias taken in all respects. No insect pests devour them, the flowers are admirably adapted for house decoration when cut, and they are easily raised from seeds. To get the young plants started well, however, they should be planted out on a mild hot-bed from the seed boxes, such as are used for growing on early vegetables. It is difficult to get good strong plants by June if they are set out on a cold bottom.

The Narcissus season is about past now; only a few of the Poet's varieties remain to open, and these are naturalized in the orchard under Apple-trees, where the white starry flowers seem peculiarly suited. They thrive well here, too; better, indeed, than in the border under richer soil and cultivation. The more robust Trumpet varieties do not do as well in the grass; they enjoy more nourishment, and will give correspondingly better returns. If the crop of flowers has been poor this spring, it is a sure sign of deterioration, and will probably be caused by overcrowding of the bulbs; ours all had to be transplanted last fall, and had been left a year too long. We did not get the amount of flowers this spring that the bulbs ought to have produced, and those that were potted up for forcing did not flower well. Next fall, however, they will be in fine condition to lift for winter blooming, and ordinarily home-grown bulbs give much better returns than those grown in Holland, and they can be had in bloom earlier.

We have been much pleased with the Burbank Canna. It is

very similar to Austria, but has more substance, is dwarfer, and seems to have broader foliage. We have had a good opportunity to compare them, as we had the two, with Italia, in bloom at the same time. The trio will make valuable plants for flowering in the greenhouse in pots or tubs, and there is no doubt a place for them, even if they are not adapted to outdoor culture, as with the Crozy race.

Another very pretty novelty of this season is the so-called yellow Soupert Rose Moselle. It is extremely double, with a pretty apricot-yellow centre. Now that it is well known what admirable bedding Roses the Soupert Roses make, the Moselle will be a decided gain for summer bedding. The Roses of this race bloom perpetually in the open ground until frost, and their hardiness is undoubted.

South Lancaster, Mass. *E. O. Orpet.*

Xanthoceras sorbifolia.—This beautiful little tree is just now the pride of our grounds (see vol. vi., p. 285). It has an erect habit and is now ten feet in height, and so completely covered with bloom that scarcely any of its very handsome dark green pinnate foliage is visible except a green spray here and there to give relief from the dazzling beauty of the flowers. These are large, upright, five-petaled and bell-shaped, and they have the unusual quality of changing their appearance day by day. When they open they are white with greenish centres, and the lower ends of the petals are marked with veins of lemon-yellow. By about the second day the petals have spread apart, showing more plainly the green calyx, and the veins have deepened to brownish yellow. About the third day a still more singular change takes place. The yellow has become a beautiful shade of pink, the green ovary swells and becomes conspicuous, and by about the fourth day the flower has utterly changed its character, as the veins and lower end of each petal are now a deep and beautiful shade of red, an indescribable color, very rare in nature. Meanwhile the petals have continued to spread apart, showing between them the green divisions of the calyx, and these changes, together with the swelling of the now prominent ovary, give the flower a totally different appearance from that which it presented at the time of its opening. On the spray which I now hold in my hand all the changes I have described can be noted at the same time, as some of the lower blossoms, which are persistent, are about four days old, and those at the top have just expanded. The individual blossoms are on long foot-stalks, and these are each ornamented with three green ovate bracts where they join the parent branch. The Xanthoceras seems to be perfectly hardy, and deserves a choice and conspicuous place in the shrubbery where it can have room enough to develop without being crowded. It has a single stem and is more like a small tree than a shrub. It is said to attain to the height of fifteen feet in its native country. Here it seems to find congenial soil and grows rapidly.

Rose Brake, W. Va. *Danske Dandridge.*

Correspondence.

The Red Cedar.

To the Editor of Garden and Forest:

Sir,—I read your article of April 14th and that of "H. S. H.," of Wellesley, Massachusetts, in your issue of April 28th, recommending Red Cedar for more general ornamental planting, with interest. Three years ago I had arranged to transplant a number of young Red Cedars found in old pasture-fields in western Pennsylvania to one of our parks at Youngstown, but chanced to read Bulletin No. 92 of the North Carolina Agricultural Station, published in August, 1893, before doing so, and upon the representation of the author, Professor W. F. Massey, horticulturist of the above station, that Red Cedar caused apple rust, and that the best remedy for the rust was the destruction of all Red Cedars within a mile of Apple orchards, reluctantly abandoned the idea.

From page 86 of the above bulletin I quote as follows:

"Rust of the apple is one of the worst diseases this fruit suffers from throughout the southern states. It is especially bad in sections where the Red Cedar abounds. This disease is caused by a fungus which, unlike all other fungi parasitic on tree fruits, is bimorphic—that is, it exists at different seasons in two very distinct forms and on different hosts. The form on the apple 'rust' is botanically known as Roestelia pirata. The other form affects the Red Cedar, producing the so-called 'Cedar apples,' and is botanically known as Gymnosporangium macropus. The apple form or 'rust' is the immature form of the Cedar form. The fungus appears to be restricted to these two naturally widely separated genera of plants. Hence, if all the Red Cedars, Juniperus Virginiana, within a mile of an Apple orchard are destroyed, no mature forms or reproductive spores of the fungus can be formed, and no further infection of the orchard can occur. The destruction of all Red Cedars within a mile will, in most cases, prove a complete remedy for 'rust.' When winds are unusually strong the mature spores may be carried for over four miles, but ordinarily they will not be carried over one mile. But one or two Cedars, if overlooked, may breed spores enough to infect several orchards."

However desirable the Red Cedar may be for ornamental purposes, it ought not to be extensively used if detrimental to apple-culture.

Youngstown, Ohio. *Volney Rogers.*

[This rust is more dangerous to Quinces than to Apples, and it seems to have been proved (see Bulletin 80, Cornell Experiment Station, page 627) that the spores from the Cedar apples can be carried by the wind eight miles, and that it may affect Quince-trees, Apple-trees or Hawthorns at that distance. Nevertheless, the disease is not so serious in our latitude but that it can be kept down by spraying with Bordeaux mixture. If we spray our fruit-trees for the scab fungus and other diseases as we should we shall not find the Red Cedar such an injury to orchards that we shall feel any desire to exterminate it. This matter was referred to Professor Bailey, who writes: "I do not feel as much alarm as I once did over bugs and fungi. I should not deliberately plant Red Cedars around a Quince orchard, but if I wanted Red Cedars on my grounds I should plant them without hesitation. Upon my own farm I am planting hundreds of Apple-trees, and there are many native Cedars standing about the place which I do not expect to destroy, although I shall do so if they become intolerable nuisances."

The New York Park Board is planting Red Cedars in Morningside Park. Of course, there are no orchards near enough to be in danger, but the Hawthorns and other trees of the Rose family may be injured by the fungus. Nevertheless, the time is coming when spraying for other fungi will be a general practice in park plantations as well as in orchards, and we have little fear from the Cedar apples. Indeed, it would not be a difficult matter to remove the galls as they appear upon the Cedar-trees. There is no doubt as to the fact that the Red Cedar is the propagating centre of a rust which in another form grows on members of the Rose family, but with our present knowledge of the means of keeping it in check we see no reason to abolish the Red Cedar either from parks or from private plantations.—Ed.]

John Evans.

To the Editor of Garden and Forest:

Sir,—Dr. Harshberger has done good service to the early history of botany in the appreciative notice of John Evans, one of Philadelphia's famous botanist-gardeners. He has not overdrawn the picture of this modest, amiable and useful enthusiast. It is just fifty years ago, this blooming month of May, since Robert Buist, then in the prime of his career as a nurseryman, invited me to take a ride with him to see "a wonderful collection of plants by a farmer, who was also an excellent botanist." He drove to Evans' garden. Like many young men, I was inclined to believe I knew a good deal. But I was amazed at the great store of knowledge gained on that day's trip. The reference by Dr. Harshberger to the sawdust reminds me particularly of the lesson learned as to the love of the Raspberry and Currant for rotten wood, which for the first time I saw there.

That he gathered everything from the gardens around Philadelphia that could be obtained, the following little circumstance will testify to: While showing us his garden treasures nothing could exceed his enthusiasm. No trouble seemed too great for him in showing us everything that he thought would interest us. Mr. Buist was silent after entering the carriage on our homeward drive. After a long while he suddenly exclaimed, "Thomas, many a dollar that man has paid me for rare plants for his garden, but never again will I take money from him. He can have anything he wants from my place after this, and he shall not be charged a cent for

it." The story shows alike the goodness of heart of two men, both enthusiastic lovers of trees and nature.

Besides Bartram, Marshall and Evans, Corson deserves a conspicuous place in the well-deserved tribute of Dr. Harshberger.

Germantown, Pa. *Thomas Meehan.*

Early Flowers.

To the Editor of GARDEN AND FOREST:

Sir,—In early April, GARDEN AND FOREST editorially intimated, very pleasantly, that those of us who insist on having early flowers in our gardens were braving the elements and courting pneumonia and sudden death, things not to be expected of the average owner of gardens. This scarcely represents either side of the case. The average gardener simply does not appreciate the fact that there are countless flowers of most exquisite beauty which flower early in the year, and that he very much misses his opportunities if he shortens his garden season several months. I mean by average gardeners here those who have some enthusiasm on the subject, not those hopeless people who in these early days of May are turning loose the jobbing gardener in their borders to destroy all living things and "tidy up." As for the growers of early flowers they have "lived through March" again, for, as a matter of fact, the work in such gardens was finished in the previous year and one had only to enjoy the results, and this does not lead to much exposure. It is not necessary to linger or dawdle over a flower to absorb its beauty. A glance is often enough to fill one's mind with a beautiful image and start one's imagination, and imagination is as useful to a gardener as a spade. And then the first awakening of plant life is a rare experience which we see only a few times in our short lives. The luxury of a garden to me does not consist in spacious plant-houses filled with tropical plants, or in the flowers more especially valuable for the market; these are only incidents of a complete garden which should primarily contain plants of all seasons growing in the freedom of nature. An ideal garden should, among other things, comprise a few low hills, with a ravine or two, and perhaps a brook. Shrubs one should always have, not only for the flowers, but for the shadows which they make. On these hills, with some shrubs, one could naturalize a host of dainty plants, worthy of the early year, which would tempt one to wander afield, and furnish always those surprises which add so much to the pleasures of gardening. In all but the point of view of the lover of flowers this is very unpractical gardening, for many flowers would bloom unseen. Still, even then they would feed the imagination of the planter who could not, perhaps, enjoy sometimes the fruit of his labor at the moment. However, one does not require a large domain for gardening pleasures of this kind. The smallest garden may be so stocked, if one represses a desire for bigness and show, that one can daily discern something new, and often come across some lovely thing planted long since and forgotten in the absence of bloom. One learns in collecting plants not to expect everything to flower each year, and it is curious how many plants one accumulates which for one reason or another flower very infrequently or not at all. The great drawback to the cultivation of any but a conventional garden is the impossibility of securing intelligent help for those minor operations which one would prefer to pay for. Help is very expensive when it results in weeding out everything except familiar plants. The cultivation of dainty plants would not, of course, appeal to those who must hunt their pleasures with a fund.

Elizabeth, N. J. *J. N. Gerard.*

Flowers at the Farmers' Club.

To the Editor of GARDEN AND FOREST:

Sir,—At the monthly meeting of the Farmers' Club of the American Institute, held Tuesday, May 11th, at 111–115 West Thirty-eighth Street, this city, there was a large and varied exhibition of flowers of hardy herbaceous plants and shrubs. The general subject for discussion was Hardy and Native Plants, and Dr. N. L. Britton, Director of the New York Botanical Garden, gave bibliographical notes of Dodecatheon, together with illustrations and herbarium specimens. Other speakers were Mr. S. B. Parsons, Mr. Samuel Henshaw, Mr. Huested, Dr. Ward, Mr. C. L. Allen, Mr. Leonard Barron, editor *American Gardening*, and Mr. Holloway, who stated his successful experience with Japanese Maples in an exposed position on Long Island. Mr. A. Herrington made a plea for the natural expression of trees and shrubs, and against formal pruning and clipping. Dr. Hexamer, President of the club, spoke of the charm of the hardy plant garden in its variety, and said this is the garden for the home and the family and children, rather than for neighbors, and that it is a living kindergarten and nature's own garden. Mr. John Lewis Childs, of Floral Park, New York, had an exhibit of seventy-six distinct kinds of flowers, including Viburnum lantana, Daphne Cneorum, Meehan's Halesia, Spiræas, Polemonium cœruleum, Tritelia uniflora, Iberis Gibraltarica, Jonquils, Lychnis, hybrid Aquilegias, Irises, Erysimum pulchellum, the red and yellow flowering Currants, with many of the Japanese flowering Apples and Plums. There were also several distinct strains of Viola pedata, one of peculiarly rich marking, and supposedly from the section of Long Island about Hempstead Plains, where these Violets are strongly established. Mr. James Holloway, Glen Cove, Long Island, showed a highly interesting collection in seventy-four vases, among which were Azalea amœna, Elæagnus longipes, Kerria variegata, thickly flowered Cercis Japonica, large clusters of the sweet-smelling yellow flowers of Berberis Aquifolium, Sambucus pubescens and Berberis Sieboldii, often called B. Hakodate; seven forms of Apples were included in this exhibit, the most showy being Pyrus Parkmanni, the more delicately colored P. floribunda and the large double P. coronaria. The only Rhododendrons shown were from G. J. Aitken, gardener to R. Cook, Esq., Bayonne, New Jersey. Mr. A. Herrington, gardener to H. McK. Twombley, Esq., Madison, New Jersey, had large sprays of Cornus florida, Halesia, Judas-tree, Exochorda and the red-flowering Dogwood.

Other exhibitors were William Turner, gardener to William Rockefeller, Esq., Tarrytown, New York; W. Anderson, gardener to J. M. Constable, Esq., Mamaroneck, New York, who sent three luxuriantly grown masses of white, pink and purple Campanulas; Mr. S. B. Huested, Blauvelt, New York, had a showy exhibit in twelve vases; several of the brightest masses were foliage of Japanese Maples and the Japanese Judas-tree. A. Grierson, gardener to Hicks Arnold, Esq., Rye, New York, who, with Iris lupina, I. cristata and I. Korolkowi, showed many of the best Narcissi, Trillium grandiflorum, Summer Snowflakes and the yellow Doronicum Plantagineum excelsum, besides a showy mass of Iceland Poppies and choice Tulips in large variety. M. A. Muller, Oasis Nursery, Westbury, Long Island, and Messrs. Siebrecht & Son also had interesting displays. Branches of Xanthoceras sorbifolia, Epimedium, Colchicum, English Cowslips and Wallflowers, Alyssum saxatile and single and double Pæonia tennuifolia were all seen. Mr. W. A. Manda, South Orange, New Jersey, exhibited a specimen of Lilium longiflorum with variegated foliage, and Mr. Barron showed a vase of the dainty little Hoop-petticoat Narcissus, N. bulbocodium. Mrs. C. S. Valentine brought an interesting collection of hardy cultivated and wild flowers gathered within the town limits of Cranford, New Jersey, including seven species of native Violets, Bellworts, True Solomon's Seal, Pedicularis Canadensis, Arabis bulbosa, Naked Broom Rape, Podophyllum peltatum and Pansies wintered out-of-doors.

New York. *M. B. C.*

Recent Publications.

The Procession of the Flowers and Kindred Papers. By Thomas Wentworth Higginson. New York: Longmans, Green & Co. 1897.

One always picks up a book with a title like this with some apprehension. Men who consider themselves endowed in a greater or less degree with what is called a "feeling for nature" are apt to feel that the great mass of their fellow beings are less fortunate in this respect and need to be instructed as to what is going on about them. It too often happens, therefore, that a writer with very little imagination, no sense of humor, and a habit of taking himself seriously, feels moved to describe in a prosaic fashion what he thinks he ought to see, with the depressing results which are seen in countless books and magazine articles. This little book, however, is not a collection of such commonplace essays as those to which we have made allusion. The author is a man of scholarship, taste and literary skill. He is an original observer, and without making any pretensions to being a naturalist he describes what he sees with accuracy, and not infrequently his thoughts rise to the realm of poetry. The sketch entitled My Outdoor Study is perhaps the best of the half-dozen which the book contains, and is thoroughly enjoyable from beginning to end.

Notes.

The leaves on the young shoots of the Wild Cherry, which is found abundantly in the hedge-rows of every Long Island farm, are now so fully grown that branches for the decoration of fruit-stands are again in the market. The red stalks and midribs of the leaves, the rich color of the bark on the new growth, the delicate green of the glossy foliage growing lighter toward the tip of the branches, together with the grace of form and the silver-bronze tints of the half-grown leaves at the summit, make a singularly beautiful combination.

The permanent portion of the great Hamburg Exhibition is now about completed. The location is on undulating ground, and it will be decorated with thousands of plants of Azaleas, Rhododendrons and Roses, in bloom or in bud, with a great number of conifers, Hollies and other plants, grouped for effect. The first of the six special exhibitions began on the first of May, and the display was most imposing and extensive, filling all the available space in several buildings, the largest of which covers two acres of ground. The managers have expended half a million dollars on the buildings and grounds.

The prices of flowers were, perhaps, never so low in this city as they were last week, when carnations brought as little as $1.00 a thousand, and a regular rate for roses was $5.00 a thousand. Indeed, many of the highest-grade flowers could not be disposed of at any price. Besides the close of the social season, another reason for the slow sales is the abundant use of sprays of Lilac and other early spring flowers, both wild and cultivated, and flowering branches of trees and native shrubs for church and other decorations. These flowers are for sale by the armful on the street corners, or they can be had for the picking almost anywhere in the suburbs.

Professor Jordan, Director of the New York Experiment Station at Geneva, has concluded that many of the 25,000 persons on the list to whom his bulletins are mailed would be benefited by popular editions of those which consist largely of tables of figures and elaborate reasoning, or are expressed in the concise and technical language of science. These popular bulletins will be sent to the regular mailing-list, but the scientific or statistical bulletins will be mailed to any who desire to examine them. We have received four of these popular bulletins, which seem to have been admirably edited by Mr. Frank H. Hall, of the station staff. One of these is on Gooseberries, another on Spraying for the Plum and Cherry-leaf Spot, a third is on Alfalfa, and a fourth on The Ravages and Treatment of Cut-worms.

A correspondent of *The Country Gentleman* gives the information that the destructive San José scale which has been brought from California into eastern orchards, to the great alarm of fruit-growers, has met at last with a check in Florida. Professor P. H. Rolfs, of the Florida Experiment Station, discovered it in vast numbers at De Funiak, and in the course of his investigation he observed many dead scales on trees which had never been sprayed or treated in any way. He found that the mortality was due to a parasitic fungus which had attacked the scale and killed it. This morbific fungus is a native of Florida; it can be propagated artificially with ease in unlimited quantities and it can be applied with a spraying machine like other insecticides. If all this is true, Professor Rolfs' statement that the discovery of this fungus disease marks the beginning of a new era in the methods of fighting with this insect will readily be accepted.

Viburnum lantanoides was one of the many shrubs in flower at the Arnold Arboretum last week. The flat, Hydrangea-like corollas of the neutral flowers on the margins of the cymes are an inch or more in diameter, and appearing above the half-grown leaves are very effective. The plant is good at all seasons with its sturdy growth, its large leaves, its beautiful fruit, changing through coral-red to dark crimson or purple in autumn; it is really one of the most desirable shrubs or small trees in our North American flora. When grafted on V. dentatum it grows very well, but on its own roots it is not an easy plant to manage. Two other native shrubs of the north-eastern United States, which are rarely planted, were in bloom, namely, the Bush Honeysuckles, Lonicera ciliata and L. cœrulea. The first one, which attains a height of five feet, has rather large, greenish yellow flowers, borne in pairs, which are succeeded by bright red berries. The second, a smaller plant, some two feet high, has pale yellow flowers and blue fruit. Both of these plants are easily cultivated and are desirable in any considerable collection of shrubs.

The Alligator, or Avocado, pear, which is quite frequently seen in the New York market, is now grown largely in Madeira, where it was introduced thirty or forty years ago. According to a late English Foreign Office report, the tree attains a height of from twenty to thirty feet in Madeira, making a tall, slender growth, and having smooth, green, Laurel-like leaves. Three to five of the pear-shaped fruits grow in a cluster and become a dark purplish brown when ripe. The pulp, which is often called "vegetable butter," is found between the thin skin and the globular seed. This is generally eaten as a salad, being seasoned with pepper and lime-juice, which is said to bring out the peculiar nutty flavor which is much appreciated by those who have acquired a taste for it. Others eat it as a dessert fruit with sugar as they do melons. The fruit is in season from the middle of September until the end of February, and is mostly consumed at home, although a portion of the crop is sent to England and to Lisbon. It is easy to export, but since the taste for it, like the taste for many other tropical fruits, is an acquired one, shippers only export it when ordered. The trees are propagated from seed, and the plants do not bear fruit until they have attained the age of from five to seven years.

We have received two inquiries from correspondents about the damaged foliage of young Norway Maple-trees, and they send specimens which seem to be blackened and wilted as if they were affected by some fungus or insect. Of course, without further examination we are not able to give the cause of the trouble, but some notes in the annual report of the Hatch Experiment Station of Massachusetts, just issued, may be of interest. Last year many leaves of the Sugar Maple in a dry and crisp condition were sent to that station for investigation, and the same condition was observed in different varieties of the Japanese Maple growing on the college grounds at Amherst. The leaves were wilted only on the west side of the tree which was toward the prevailing wind upon the day when they were affected, and this peculiarity seemed to extend all over the state on the 18th of May last. The wilting of the leaves which occurred quite generally through Massachusetts was evidently due to excessive transpiration of water, when the supply at the root was limited. The phenomenon was interesting, as it occurred on apparently healthy trees under unusual conditions, which lasted but a few hours. It is well known that the agitation of the leaves of a plant greatly accelerates the process of transpiration just as low humidity and a high temperature do. These were the conditions upon the day in question. Before this the rainfall had been below the average, and there had been continued droughts during two preceding years. The supply of available water, therefore, was less than usual, and under a strong, dry, warm wind the leaves of a tree like the Maple, with a large surface, might be expected to become exhausted and wilt badly. When this wilting was not carried to excess the leaves recovered. When it went too far it resulted in the shriveling and death of the foliage. It ought to be remembered, too, that young leaves give off more water than older ones, and Maple leaves are transpiring their maximum quantity in May. The report goes on to say that if there had been plenty of water in the soil the high wind would probably not have caused wilting, or if the same conditions had occurred in August or September, when the foliage was mature, less wilting would have resulted. This spring there does not seem to be any great lack of water in the soil, and we do not know the precise day on which the wilting occurred nor the course of the winds. It is not improbable, however, that accelerated transpiration and lack of water-supply was the cause of the damage to the leaves reported by our correspondents.

John Saul, one of the oldest and most widely known nurserymen of the country, died at his residence in Washington on the 11th instant, at the age of seventy-four years. He was born in Lismore, Ireland, where he was trained as a gardener, and while still a young man took the management of a nursery in Bristol, England, after having lived for a time in the Isle of Wight. He emigrated to this country in 1851, and was associated with Andrew Jackson Downing in the planting of the Smithsonian grounds and other parks in Washington. In 1852 he established the business which he has conducted for forty-five years. Mr. Saul was an enthusiastic grower of Orchids, and he has furnished the best American gardens with many of their rarest and most valuable plants. He was Chairman of the Parking Commission of the District of Columbia, which during the last twenty-five years has done so much to beautify the capital of the nation with well-planted street trees. His attainments commanded the respect of the best horticulturists and pomologists of the country, and he was esteemed by all for the integrity, simplicity and purity of his life.